Principal Machines on Farms — 1991

STATE	WHEEL TRACTORS 1982 Census Number	WHEEL TRACTORS 1987 Census Number	WHEEL TRACTORS Estimated July 1, 1990 Number	SELF-PROPELLED COMBINES 1982 Census Number	SELF-PROPELLED COMBINES 1987 Census Number	SELF-PROPELLED COMBINES Estimated July 1, 1990 Number	CORN HEADS 1982 Census Number	CORN HEADS Estimate July 1, 1990 Number	POWER ELEVATORS Estimated July 1, 1990 Number	MANURE SPREADERS Estimated July 1, 1990 Number	CORN & COTTON PLANTERS Estimated July 1, 1990 Number	GRAIN DRILLS Estimated July 1, 1990 Number	MOLDBOARD PLOWS Estimated July 1, 1990 Number	SI DELI RA Estim July 1, Num
Maine	13,569	14,260	14,750	320	540	540	181	160	4,790	2,795	275	755	7,540	5,1
New Hampshire	5,097	5,052	5,175	8	23	20	50	40	2,260	1,785	250	50	2,575	2,1
Vermont	15,274	15,295	15,415	76	128	125	374	355	7,290	5,635	1,415	280	8,715	6,5
Massachusetts	9,956	13,160	13,520	23	60	60	145	140	3,270	2,035	775	90	5,215	3,1
Rhode Island	1,364	1,556	1,610	6	8	5	13	10	450	235	85	25	605	2
Connecticut	8,421	9,218	9,825	53	84	80	98	75	3,805	2,190	910	70	4,950	2,2
New York	119,498	115,509	115,630	6,030	7,887	7,910	3,904	3,950	63,420	36,010	17,435	23,925	69,010	42,4
New Jersey	20,554	23,375	23,680	1,011	1,096	1,100	593	580	5,580	2,155	2,130	2,190	14,380	3,5
Pennsylvania	136,505	142,342	142,530	9,707	13,744	13,780	5,408	5,600	67,560	37,255	30,045	35,910	87,660	43,8
Delaware	8,012	7,128	7,490	1,342	1,280	1,300	1,006	955	3,585	1,580	1,880	1,810	5,530	9
Maryland	36,951	37,672	38,210	3,279	3,579	3,625	2,840	2,770	14,900	7,505	7,665	7,915	24,795	7,9
NORTHEAST	**375,201**	**384,567**	**387,835**	**21,855**	**28,429**	**28,545**	**14,612**	**14,635**	**176,910**	**99,180**	**62,865**	**73,020**	**230,975**	**118,2**
Ohio	193,367	197,852	197,320	33,200	35,908	36,150	26,403	26,200	116,145	50,385	56,875	57,200	140,905	49,8
Indiana	167,563	171,059	171,700	34,646	36,151	36,450	31,391	29,100	115,280	44,555	58,320	46,595	120,330	36,7
Illinois	262,112	263,319	262,845	61,411	60,208	61,010	55,636	53,000	175,520	65,170	85,315	58,760	156,095	47,7
Iowa	305,334	302,392	301,755	57,726	60,004	60,510	57,046	56,400	185,370	88,945	94,875	54,505	185,985	80,7
Missouri	193,758	196,774	195,955	32,957	33,765	34,015	21,834	20,200	82,180	49,995	45,445	47,370	131,100	47,6
CORN BELT	**1,122,134**	**1,131,396**	**1,129,575**	**219,940**	**226,036**	**228,135**	**192,310**	**184,900**	**674,495**	**299,050**	**340,830**	**264,430**	**734,415**	**262,7**
Michigan	146,655	143,734	144,455	21,060	23,587	23,660	13,583	14,300	82,375	32,875	34,490	46,015	113,605	39,1
Wisconsin	243,827	250,979	250,105	19,215	25,315	25,390	11,939	13,250	129,950	75,480	60,815	58,660	145,525	81,7
Minnesota	264,581	265,669	265,775	45,847	51,183	51,490	31,098	31,600	145,550	68,285	73,205	68,015	156,960	79,0
LAKE STATES	**655,063**	**660,382**	**660,335**	**86,122**	**100,085**	**100,540**	**56,620**	**59,150**	**357,875**	**176,640**	**168,510**	**172,690**	**416,090**	**199,9**
North Dakota	108,103	111,746	111,705	27,546	30,502	30,700	2,708	3,030	70,535	18,580	13,640	53,835	57,570	20,6
South Dakota	105,699	106,997	106,910	16,961	19,025	19,175	9,606	10,300	62,635	25,960	27,605	30,485	57,765	20,9
Nebraska	164,308	171,501	171,195	34,032	35,024	35,125	25,484	25,240	97,070	39,780	41,215	39,075	81,985	31,8
Kansas	149,870	150,647	151,320	46,662	43,801	44,120	8,321	7,250	103,560	33,165	19,985	63,480	83,235	32,7
GREAT PLAINS	**527,980**	**540,891**	**541,130**	**125,201**	**128,352**	**129,120**	**46,119**	**45,820**	**333,800**	**117,485**	**102,445**	**186,875**	**280,555**	**106,2**
West Virginia	27,110	27,690	27,840	562	874	875	471	480	6,245	7,515	4,750	3,325	17,155	8,7
Kentucky	163,176	167,810	169,565	11,466	12,572	12,630	9,924	10,250	24,110	24,795	34,975	10,275	97,465	28,3
Tennessee	126,365	126,678	127,055	11,227	10,260	10,290	6,508	6,680	14,865	18,090	47,265	12,830	63,245	22,5
Virginia	88,511	84,991	84,760	6,224	6,993	7,030	5,061	5,130	18,360	19,355	23,535	15,475	58,725	21,5
North Carolina	131,488	121,125	121,530	13,820	13,617	13,660	10,618	10,200	20,120	18,945	66,385	20,745	56,420	14,7
APPALACHIAN	**536,650**	**528,294**	**530,750**	**42,299**	**44,316**	**44,485**	**32,582**	**32,740**	**83,700**	**88,700**	**176,910**	**62,650**	**293,010**	**95,8**
South Carolina	44,338	40,783	41,610	6,263	5,077	5,125	3,808	3,600	4,660	3,495	27,815	10,705	9,805	5,4
Georgia	75,505	73,732	73,635	8,980	8,831	8,890	6,438	5,735	13,650	5,930	35,355	9,235	27,875	9,7
Florida	52,346	158,854	62,670	1,742	1,638	1,645	1,307	1,330	3,615	1,065	5,420	1,600	18,070	1,7
Alabama	66,330	66,163	67,580	6,935	5,870	5,880	3,630	3,600	11,200	3,955	38,525	6,490	20,855	7,0
SOUTHEAST	**238,519**	**339,532**	**245,495**	**23,920**	**21,416**	**21,540**	**15,183**	**14,265**	**33,125**	**14,445**	**107,115**	**28,030**	**76,605**	**23,9**
Mississippi	70,139	62,506	63,280	9,695	7,371	7,400	861	950	7,660	4,515	47,845	7,640	26,340	9,0
Louisiana	56,883	53,568	54,405	8,468	6,567	6,625	286	240	2,500	2,600	15,140	6,835	19,705	5,8
Arkansas	81,556	83,111	82,985	12,891	10,831	10,820	221	190	9,355	6,350	19,885	12,200	43,545	9,7
DELTA STATES	**208,578**	**199,185**	**200,670**	**31,054**	**24,769**	**24,845**	**1,368**	**1,380**	**19,515**	**13,465**	**82,870**	**26,675**	**89,590**	**24,5**
Oklahoma	99,934	106,518	106,295	17,299	15,781	15,810	600	500	24,975	8,250	8,405	29,810	72,855	18,4
Texas	264,740	288,018	287,105	21,049	21,260	21,350	3,913	3,875	39,750	15,655	50,535	46,695	83,330	21,4
S. PLAINS	**364,674**	**394,536**	**393,400**	**38,348**	**37,041**	**37,160**	**4,513**	**4,375**	**64,725**	**23,905**	**58,940**	**76,505**	**156,185**	**39,8**
Montana	54,666	56,648	56,470	12,038	12,025	12,060	89	70	27,780	9,720	1,000	20,165	25,885	12,9
Idaho	50,575	54,534	54,965	9,309	9,495	9,550	344	320	24,250	12,120	2,430	14,660	31,430	15,1
Wyoming	20,673	20,360	20,580	1,991	2,127	2,130	221	230	4,985	4,160	870	3,905	14,755	4,8
Colorado	56,141	59,043	59,440	7,994	8,469	8,510	2,618	2,590	24,975	12,370	5,685	14,565	24,710	13,3
New Mexico	17,455	19,162	19,260	1,346	1,541	1,535	308	320	2,545	2,015	2,890	1,840	8,260	3,9
Arizona	12,262	13,364	14,070	369	382	390	94	90	1,780	855	1,735	1,345	3,170	1,3
Utah	21,613	23,985	24,595	1,591	1,754	1,755	225	220	9,970	6,705	1,550	5,195	14,275	8,7
Nevada	5,160	5,768	5,780	234	294	285	19	20	930	985	60	300	2,400	1,4
Mt. STATES	**238,545**	**252,864**	**255,160**	**34,872**	**36,087**	**36,215**	**3,918**	**3,860**	**97,215**	**48,930**	**16,220**	**61,975**	**124,885**	**61,8**
Washington	59,377	63,139	63,580	8,314	7,996	8,020	558	580	21,530	12,760	1,675	16,300	34,900	12,7
Oregon	53,243	55,813	56,050	6,235	6,442	6,470	209	220	17,370	11,285	1,040	11,220	33,920	11,2
California	139,735	153,271	158,175	6,102	6,087	6,130	1,123	1,130	24,005	13,275	8,420	8,435	56,705	12,9
PACIFIC	**252,355**	**272,223**	**277,805**	**20,651**	**20,525**	**20,620**	**1,890**	**1,930**	**62,905**	**37,320**	**11,135**	**35,955**	**125,525**	**36,9**
TOTAL	**4,519,699**	**4,703,870**	**4,622,155**	**644,262**	**667,056**	**671,205**	**369,115**	**363,055**	**1,904,265**	**919,120**	**1,127,840**	**988,805**	**2,527,835**	**970,2**

*Not reported separately. [1]Cutter bar type only. [2]Shear-bar type. [3]Does not include windowers with conditioning rolls. [4]Includes engines used for stationary work and number of power units not elsewhere classified.
Source: U.S. Department of Commerce Census Bureau Census of Agriculture, 1987 and 1982. Estimates based on interpretation of data from that census, Census Bureau Current Industrial Reports, and various industry and private data sources. This table corrects some mathematical errors that appeared in the data in last year's I&T statistical issue.

U.S. Farm Wheel Tractor Retail Sales, 1986-1990

2-Wheel Drive	1986	1987	1988	1989	1990
Under 40 hp	61,648	59,902	54,741	46,926	42,040
40 & Under 100 hp	30,848	30,718	33,160	34,910	38,411
100 & Under 140 hp	5,149	5,089	4,320	5,214	22,797
140 hp & Over	9,113	10,822	11,802	15,369	
Total 2-Wheel Drive	**106,758**	**106,531**	**104,023**	**102,419**	**103,248**
4-Wheel Drive					
Under 200 hp	595	602	998	1,125	
200 hp & Over	1,442	1,051	1,731	3,026	
Total 4-Wheel Drive	**2,037**	**1,653**	**2,729**	**4,151**	**5,102**
TOTAL Farm Wheel Tractors	**108,795**	**108,184**	**106,752**	**106,570**	**108,350**

SOURCE: Equipment Manufacturers Institute (formerly Farm & Industrial Equipment Institute).

POWER TRACTOR MOWERS[1] Estimated July 1, 1990 Number	PICK-UP BALERS 1982 Census Number	PICK-UP BALERS 1987 Census Number	PICK-UP BALERS Estimated July 1, 1990 Number	FIELD FORAGE HARVESTERS[1] 1982 Census Number	FIELD FORAGE HARVESTERS[1] Estimated July 1, 1990 Number	MOWER CONDITIONERS[2] 1982 Census Number	MOWER CONDITIONERS[2] 1987 Census Number	MOWER CONDITIONERS[2] Estimated July 1, 199 Number	MOTOR TRUCKS 1982 Census Thousands	MOTOR TRUCKS 1987 Census Thousands	MOTOR TRUCKS Estimated July 1, 1990 Thousands	INTERNAL COMBUSTION ENGINES[4] Estimated July 1, 1990 Number	CHAIN SAWS Estimated July 1, 1990 Number	
5,810	3,047	2,925	2,920	1,181	1,220	2,353	2,326	2,330	12.2	12.2	12.1	1,220	7,115	Maine
2,655	1,259	1,207	1,210	544	560	960	963	975	4.1	3.9	3.8	1,140	2,350	New Hampshire
7,895	4,167	3,882	3,890	2,569	2,735	3,866	3,706	3,730	7.5	7.3	7.2	1,585	5,915	Vermont
3,485	1,704	1,993	2,005	1,083	1,105	1,533	1,783	1,795	9.4	11.0	11.1	1,640	4,310	Massachusetts
280	205	196	195	93	95	146	245	245	1.3	1.3	1.3	165	595	Rhode Island
3,055	1,508	1,595	1,600	773	805	1,318	1,506	1,530	6.8	6.9	6.8	1,435	3,615	Connecticut
48,575	28,078	26,136	26,190	19,040	19,560	25,603	25,229	25,610	60.5	56.7	56.8	19,190	47,795	New York
4,015	2,260	2,467	2,480	1,165	1,180	2,386	2,641	2,655	15.2	16.1	16.2	2,115	5,685	New Jersey
53,855	37,257	37,180	37,280	18,078	18,430	29,456	32,352	32,675	66.1	67.1	67.2	18,255	41,880	Pennsylvania
930	531	492	500	249	255	519	474	475	6.2	6.0	6.0	850	2,410	Delaware
9,970	5,719	6,126	6,150	2,670	2,730	5,136	5,638	5,720	25.9	24.3	24.4	4,130	11,665	Maryland
140,525	**85,735**	**84,199**	**84,420**	**47,445**	**48,675**	**73,276**	**76,863**	**77,740**	**215.2**	**212.8**	**212.9**	**51,725**	**133,335**	**NORTHEAST**
56,940	39,754	38,910	38,820	11,090	11,270	26,143	29,717	29,950	107.8	103.9	103.8	17,500	58,035	Ohio
44,520	23,947	25,191	25,270	6,917	6,990	15,583	18,613	18,830	112.2	111.2	111.3	18,080	62,070	Indiana
62,695	30,463	30,000	29,940	9,972	10,080	21,867	23,144	23,350	150.6	144.3	144.5	26,905	67,500	Illinois
94,610	47,776	46,867	46,950	17,638	18,100	28,401	31,333	31,710	147.7	143.4	143.5	28,645	53,650	Iowa
76,440	48,662	48,649	48,740	8,055	8,110	26,527	28,982	29,410	159.7	160.1	160.2	29,580	89,880	Missouri
335,205	**190,602**	**189,617**	**189,720**	**53,672**	**54,550**	**118,521**	**131,789**	**133,250**	**678.0**	**662.9**	**663.3**	**120,710**	**331,135**	**CORN BELT**
42,260	25,051	24,924	24,910	11,809	12,050	21,055	21,051	21,140	80.3	77.2	77.2	16,275	43,425	Michigan
91,405	58,042	56,739	56,870	43,880	44,810	51,630	52,292	52,860	99.5	97.2	97.1	31,185	88,135	Wisconsin
85,080	51,038	49,402	49,500	23,803	24,225	32,050	34,770	35,050	143.8	138.8	139.0	42,325	63,020	Minnesota
218,745	**134,131**	**131,065**	**131,280**	**79,492**	**81,085**	**104,735**	**108,113**	**109,050**	**323.6**	**313.2**	**313.3**	**89,785**	**194,580**	**LAKE STATES**
35,955	16,628	17,690	17,700	4,839	4,925	6,181	7,611	7,690	101.1	106.3	106.4	31,895	4,070	North Dakota
41,990	17,966	18,928	18,960	10,568	10,775	6,958	7,980	8,060	68.0	73.9	74.0	21,155	3,135	South Dakota
48,570	18,906	19,603	19,630	12,538	12,690	15,497	16,767	16,910	118.9	127.2	127.3	28,930	13,400	Nebraska
47,125	31,998	31,892	31,850	9,367	9,435	18,932	20,167	20,310	159.4	159.3	159.4	37,290	22,105	Kansas
173,640	**85,498**	**88,113**	**88,140**	**37,312**	**37,825**	**47,568**	**52,525**	**52,970**	**447.4**	**466.7**	**467.1**	**119,270**	**42,710**	**GREAT PLAINS**
16,565	10,550	11,233	11,260	2,323	2,350	6,033	6,548	6,590	20.5	19.7	19.6	4,530	20,695	West Virginia
44,620	35,143	38,418	38,520	7,910	8,080	23,805	28,233	28,580	125.2	122.4	122.5	14,565	42,455	Kentucky
47,820	26,506	29,438	29,520	6,313	6,380	18,734	22,007	22,250	104.7	101.1	101.2	11,225	56,285	Tennessee
29,180	21,805	23,152	23,220	6,209	6,425	14,659	16,094	16,240	68.0	63.8	63.7	10,860	46,055	Virginia
29,655	12,752	13,954	14,010	3,502	3,560	10,888	11,965	12,080	103.3	94.2	94.1	14,135	82,930	North Carolina
167,840	**106,756**	**116,195**	**116,530**	**26,257**	**26,795**	**74,119**	**84,847**	**85,740**	**421.7**	**401.2**	**401.1**	**55,315**	**248,420**	**APPALACHIAN**
9,125	4,823	5,301	5,340	1,260	1,285	4,033	4,500	4,540	34.6	31.8	31.9	5,565	23,425	South Carolina
15,205	10,407	11,175	11,215	2,717	2,740	9,465	11,111	11,160	72.6	68.6	68.7	11,475	32,310	Georgia
3,475	3,754	3,742	3,745	861	875	7,591	7,736	7,760	51.2	51.6	51.7	10,955	7,400	Florida
14,875	11,322	13,346	13,380	2,112	2,125	8,212	10,780	10,800	67.4	65.8	65.7	9,330	30,510	Alabama
42,680	**30,306**	**33,564**	**33,680**	**6,950**	**7,025**	**29,301**	**34,127**	**34,260**	**225.8**	**217.8**	**218.0**	**37,325**	**93,645**	**SOUTHEAST**
19,680	10,509	10,222	10,215	1,927	1,940	7,949	8,029	8,040	59.0	50.6	50.7	8,985	36,020	Mississippi
9,930	6,425	6,725	6,740	1,327	1,340	6,698	6,723	6,740	44.3	39.7	39.6	10,695	19,760	Louisiana
19,015	13,994	15,596	15,650	1,634	1,635	10,035	11,436	11,495	79.3	79.4	79.4	12,120	30,355	Arkansas
48,625	**30,928**	**32,543**	**32,605**	**4,888**	**4,915**	**24,682**	**26,188**	**26,275**	**182.6**	**169.7**	**169.7**	**31,800**	**86,135**	**DELTA STATES**
29,750	22,690	24,820	25,000	2,491	2,500	17,107	18,194	18,320	122.8	126.3	126.3	18,160	9,785	Oklahoma
43,210	33,736	41,208	41,360	5,109	5,175	39,629	47,054	47,390	249.9	267.8	267.9	54,205	19,125	Texas
72,960	**56,426**	**66,028**	**66,360**	**7,600**	**7,675**	**56,736**	**65,248**	**65,710**	**372.7**	**394.1**	**394.2**	**72,365**	**28,910**	**S. PLAINS**
19,640	12,468	13,482	13,530	2,429	2,450	8,102	9,429	9,460	68.2	72.6	72.7	16,535	11,655	Montana
19,580	12,210	12,101	12,025	2,384	2,410	8,515	9,093	9,115	57.1	59.1	59.1	13,535	13,010	Idaho
5,630	5,066	5,181	5,195	1,222	1,230	3,904	4,207	4,220	22.1	23.1	23.2	5,355	3,155	Wyoming
14,440	10,365	11,240	11,320	3,503	3,525	7,040	8,668	8,700	63.0	68.1	68.1	17,395	6,075	Colorado
4,320	3,403	3,280	3,300	802	815	2,395	2,711	2,720	24.6	27.2	27.2	6,505	2,965	New Mexico
1,860	1,042	1,138	1,145	348	360	861	1,032	1,035	16.6	16.6	16.5	4,450	505	Arizona
9,925	6,965	7,076	7,130	1,978	2,045	5,547	6,031	6,050	23.3	25.7	25.8	5,645	2,330	Utah
1,430	1,598	1,791	1,800	437	450	1,314	1,384	1,390	6.5	7.3	7.2	1,320	590	Nevada
76,825	**53,117**	**55,289**	**55,445**	**13,103**	**13,285**	**37,678**	**42,555**	**42,690**	**281.4**	**299.7**	**299.8**	**70,740**	**40,285**	**MT. STATES**
19,015	9,518	9,782	9,850	3,060	3,120	9,838	9,930	9,960	69.2	69.7	69.8	14,135	22,430	Washington
17,890	9,730	9,565	9,560	2,555	2,595	8,528	9,215	9,240	61.2	61.3	61.4	18,330	25,465	Oregon
21,655	6,725	6,697	6,715	2,715	2,810	9,299	10,570	10,580	147.9	157.6	157.6	54,920	31,515	California
58,560	**25,973**	**26,044**	**26,125**	**8,330**	**8,525**	**27,665**	**29,715**	**29,780**	**278.3**	**288.6**	**288.8**	**87,385**	**79,410**	**PACIFIC**
1,335,605	**799,472**	**822,657**	**824,305**	**285,049**	**290,355**	**594,281**	**651,970**	**657,465**	**3,426.7**	**3,426.7**	**3,428.2**	**736,420**	**1,278,565**	**TOTAL**

Canadian Farm Wheel Tractor Retail Sales, 1986-1990

2-Wheel Drive	1986	1987	1988	1989	1990
Under 40 hp	4,307	4,680	4,207	3,940	3,574
40-99 hp	9,382	9,021	9,344	7,881	7,228
100 hp & Over	3,451	3,065	2,333	2,953	2,602
Total 2-Wheel Drive	**17,140**	**16,766**	**15,884**	**14,774**	**13,404**
Total 4-Wheel Drive	**1,609**	**984**	**1,337**	**1,454**	**1,585**
TOTAL Farm Wheel Tractors	**18,749**	**17,750**	**17,221**	**16,228**	**14,989**

SOURCE: Canadian Farm & Industrial Equipment Institute.

Shipments Of Farm Machines And Equipment In Units (1985-1990)

Type of farm equipment	1990	1989	1988	1987	1986	1985
Balers, hay (all types):	36,422	33,409	25,974	18,002	10,556	7,542
Blowers (includes forage type, combination grain-forage type).	NA	3,104	3,773	2,907	2,375	2,636
Cabs, farm tractor	NA	NA	NA	3,499	2,027	2,932
Cabs, other equipment	NA	NA	NA			
Combines, grain, pull-type and self-propelled	NA	11,525	7,573	9,484	8,288	7,027
Combine corn and grain heads*	24,573	20,402	14,302	4,485	4,291	2,829
Cultivators, corn and cotton types	15,173	13,113	10,154	6,906	4,110	8,168
Cultivators, field:						
Pull-type, folding	5,800	6,403	4,207	2,940	1,504	3,897
Mounted and non-folding pull type	5,680	NA	NA	1,258	1,313	1,646
Cultivators, rotary	4,335	3,708	2,062	1,072	1,058	3,282
Cultivators and weeders, other	3,147	9,148	5,296	10,901	11,891	12,818
Cutters and shredders or rotary mowers (pto):						
Flail-type	4,591	3,772	4,879	2,913	1,434	4,523
Horizontal blade-type	106,617	231,683	229,498	140,462	100,854	98,459
Diggers (shakers, windrowers) combines for peanut	5,431	2,888	1,422	1,031	1,148	1,296
Distributors (fertilizer):						
Dry	5,796	19,525	15,862	5,206	4,545	6,143
Liquid	3,859	3,490	3,317	2,031	2,470	4,715
Anhydrous ammonia		NA	973	933	1,247	1,563
Dryers, grain, hay and seed batch type, pto or electric-motor operated	NA	2,153	1,362	2,455	3,900	3,983
Continuous flow-type	1,045	801	556	544	765	695
Heated air units	3,488	2,447	2,005	3,588	6,378	9,818
Dusters, power, all types	86,717	NA	944	1,277	901	971
Elevators, portable:						
Single chain	2,195	1,490	1,726	1,627	1,467	2,839
Double chain	1,220	2,047	6,707	6,139	8,482	5,887
Auger-type, under 6-in. dia.	7,231	7,499	7,947	9,269	8,188	7,939
Auger-type, 6-in. dia.	13,949	3,329	6,345	7,434	8,641	6,578
Auger-type, over 6-in. dia		11,863	11,221	9,776	8,953	7,167
Elevators, stationary and other	8,054	7,029	7,045	44,404	60,069	37,749
Fans, crop drying and aeration	11,108	8,664	8,430	22,151	37,123	12,850
Grain drills, fixed-frame, all types	13,001	11,405	6,439	5,113	4,492	7,159
Grain heads for combines	*	*	*	9,212	9,835	9,978
Grinder-mixers, stationary and portable	2,881	3,718	4,211	3,406	1,717	1,467
Harrows, disk	11,287	13,234	17,892	11,498	12,048	17,908
Harrow sections (spike-, spring-, tine-tooth and power)	27,373	25,536	23,508	17,052	15,274	21,068
Harrows, rollers, pulverizers	7,306	7,564	7,330	7,583	6,325	9,388
Harvesters, beet and potato	466	317	289	260	195	345
Harvesters, forage, shear-bar type, self-propelled and pull	4,631	3,958	3,508	2,186	1,997	2,647
Harvesting machinery, other (including cotton)	3,872	4,080	4,242	2,915	2,986	4,073
Levelers or scrapers 3512C-55,57,59	NA	2,601	1,829	2,065	1,992	2,034
Loaders, field, for baled hay	NA	963	1,337	1,513	1,143	1,488
Loaders, tractor mounted, farm	18,445	16,425	27,494	14,078	20,960	17,900
Mills, feed, farm size (includes grinders and crushers of the hammer, burr or roller types)	2,430	2,301	2,322	2,537	2,073	2,416
Mixers, feed, farm size	3,856	2,343	2,646	1,983	1,360	1,671
Mowers, cutter bar-type	9,815	5,047	3,143	2,302	2,665	3,934
Mower-conditioners, self-propelled and pull-type	19,498	15,988	13,821	10,733	10,556	12,397
Planters, row crop, all types (quantity in number of rows)	29,503	38,926	19,734	34,352	20,311	37,417
Plows, chisel or sweep type:						
Pull-type	NA	2,762	2,771	1,924	1,875	2,389
						4,910
Mounted	1,812	2,192	1,825	1,777	930	1,477
Plows, disk-chisel combination	3,573	2,774	2,507	1,904	1,911	2,976
Plows, subsoiler	2,680	2,947	2,102	1,202	1,000	2,208
Plows, terracing and ditching	391	383	1,663	294	417	753
Plows, moldboard, all types	NA	859	760	1,327	1,902	1,902
Plows, middle busters and disk bedders	2,331	2,181	1,849	1,495	1,853	2,469
Rakes, hay, side-delivery	12,251	10,925	7,127	4,173	5,339	8,072
Sprayers, field and row crop type:						
Power, self-propelled	2,781	2,560	1,808	1,151	1,057	1,898
Power, tractor-mounted	11,508	10,640	9,513	8,417	8,604	14,146
Power, non-tractor-mounted	3,649	3,856	3,597	4,195	4,438	5,127
Sprayers, power, not field or row crop type	6,041	7,212	6,458	6,167	6,122	4,674
Sprayers, power, air-carried	729	2,762	2,310	1,647	1,993	2,603
Spreaders, manure:						
Conveyor type	9,579	10,664	11,543	9,379	8,279	6,586
Tank type	3,286	2,869	2,840	2,415	2,440	2,371
Terracers, blade, or scrapers	31,447	32,874	32,862	54,879	43,679	48,071
Tillage equipment, combination roller/harrows, disk or coulter, field cultivators, disk or coulter/spring tooth 3523C-53	7,325	6,190	4,053	2,868	3,530	5,094
Tool bars, basic units, pull, mounted 3523C-96	1,634	1,413	1,572	1,402	1,511	1,729
Tractors, wheel, farm-type, 2-wheel drive, including front-wheel assist.						
Under 100 pto horsepower	NA	NA	NA	9,323	13,017	12,653
100 pto horsepower and over	NA	NA	NA	9,393	9,316	16,072
4-wheel drive	NA	NA	NA	3,656	1,893	2,624
Wagons, farm type, chassis only, and trailer gear	32,853	31,931	28,728	23,511	18,411	17,442
Wagon boxes and racks for mounting on wagons and trailer gear						
Manual unloading or dump	12,539	14,985	15,219	15,365	13,013	14,032
Gravity unloading, grain type	9,058	11,153	10,870	8,383	7,545	5,712
Power unloading	9,966	14,311	11,977	9,667	8,694	7,912
Wagon boxes with integral running gear	3,102	2,293	2,739	2,646	1,818	2,205

*Figures for combine corn and grain heads listed together for 1988, 1989 and 1990, separately in prior years.

SOURCE: U.S. Department of Commerce Census Bureau Current Industrial Report MA35A(90)-1, "Farm Machinery and Garden Equipment," released Nov. 26, 1991, and previous years' MA35A reports. In some categories, I&T has combined data to save space.

Value of U.S. Farm Equipment Exports of Destination,

(Value in Thousands

Country	1987	1988
Western Hemisphere		
Canada	$646,049	$584,645
Mexico	67,894	121,734
Guatemala	4,603	5,214
Honduras	4,761	6,193
El Salvador	2,366	2,230
Costa Rica	3,954	5,171
Panama	7,811	3,449
Dominican Republic	14,502	19,819
Colombia	17,973	17,050
Jamaica	5,797	3,109
Venezuela	57,265	62,649
Brazil	22,619	24,968
Argentina	15,417	8,089
Bolivia	2,115	657
Chile	8,462	12,332
Ecuador	6,051	7,035
Peru	5,812	9,357
Paraguay	2,874	1,072
Europe		
Denmark	5,797	8,918
Sweden	9,882	26,197
United Kingdom	63,063	98,173
Netherlands	12,052	18,096
Belgium-Luxemburg	49,830	82,298
France	95,630	128,925
Germany	55,058	75,788
Hungary	8,763	4,626
Switzerland	2,149	3,795
Spain	22,150	25,172
Italy	13,218	20,352
Greece	2,169	19,936
Soviet Union	1,175	8,602
Yugoslavia	1,616	5,417
Middle East		
Israel	7,232	7,341
Saudi Arabia	115,555	129,930
Turkey	4,905	5,210
Jordan	2,938	2,574
Asia and Pacific		
Thailand	1,590	4,212
Singapore	8,057	10,967
China (Taiwan)	3,304	5,627
China (P.R.C.)	9,634	10,096
Philippines	2,525	4,838
Korea	5,929	15,053
Japan	25,949	35,305
Australia	49,110	121,834
New Zealand	2,108	3,022
Africa		
Algeria	4,680	5,855
Morocco	4,156	3,696
Sudan	5,902	5,623
Nigeria	4,483	3,408
Egypt	4,680	3,316
Rep. South Africa	24,034	40,583
Total U.S. Exports, Farm & Industrial Equipment*	**$1,579,894**	**$1,911,409**

***Includes all countries, not just those listed.**

Source: U.S. Department of Commerce, International Trade and International Construction.

Industrial Countries 1987-1991

(Dollars)

1989	Jan.-Dec. 1990	Jan.-June 1991
724,437	$817,141	$348,125
142,873	201,265	88,499
8,853	8,700	3,801
7,138	5,692	3,296
3,371	2,350	883
6,775	9,107	2,269
4,048	6,397	3,893
16,698	16,309	8,662
15,879	16,414	9,962
10,147	10,009	3,104
22,786	16,282	15,026
21,076	25,513	25,123
6,689	9,189	4,216
1,219	1,891	679
16,975	17,578	12,071
17,186	11,779	7,603
4,187	5,451	2,921
644	1,282	244
9,459	7,020	8,466
24,494	21,491	10,359
06,960	118,537	47,921
18,531	28,545	23,490
84,919	98,227	29,585
61,346	141,232	82,249
78,791	102,215	90,333
27,089	10,325	7,854
5,287	5,753	4,718
40,192	35,907	24,376
22,865	26,381	19,891
16,345	8,557	3,825
2,700	7,307	1,706
1,631	12,220	2,564
6,952	9,318	4,235
97,384	110,891	39,349
2,810	1,912	838
1,526	918	65
4,265	7,857	11,180
51,697	52,726	27,331
12,161	15,521	7,717
13,430	12,804	6,804
5,098	2,735	2,810
18,414	24,838	20,500
36,141	100,240	58,607
08,739	185,918	50,934
7,154	8,119	3,337
3,242	1,769	474
1,421	1,764	202
3,161	4,720	490
4,265	2,228	828
6,564	7,900	1,846
38,768	33,690	15,828
02,808	$2,508,476	$1,204,830

istration, Office of Capital Goods

New Agricultural Tractor Imports, 1990, 1991 (First Half)

(In Units)

	Country of Origin	Under 40 HP	40-79 HP	80-99 HP	100 HP & Over	Other*	Totals
1990	Belgium	—	1,297	88	2,8114	116	4,315
	Brazil	—	82	21	7	28	138
	Canada	8	146	15	526	—	695
	China	226	13	—	—	—	239
	Czechoslovakia	173	1,067	51	71	1	1,363
	France	8	135	52	435	26	656
	Germany	115	10,517	6,358	1,068	573	18,631
	Italy	144	511	309	353	150	1,467
	Japan	37,134	2,454	220	90	819	40,717
	Korea	250	—	—	—	—	—
	Mexico	—	561	83	2	3	649
	Netherlands	—	—	—	—	15	15
	Romania	—	1,200	—	—	—	1,200
	Soviet Union	1,776	917	2,227	5	1	4,926
	United Kingdom	3,676	17,749	3,661	212	656	25,954
	Yugoslavia	—	425	—	—	—	425
	Totals	**44,613**	**37,622**	**13,085**	**5,584**	**2,573**	**103,477**
1991 (First Half)	Belgium	—	124	33	848	32	1,037
	Brazil	—	300	—	—	2	302
	Canada	6	40	—	554	—	600
	China	107	7	—	—	—	114
	Czechoslovakia	1	484	9	4	—	498
	France	—	5	2	57	—	64
	Germany	11	3,775	2,502	1,136	27	7,451
	Italy	—	498	140	169	136	943
	Japan	17,507	791	111	44	1,977	20,430
	Korea	—	—	—	—	—	—
	Mexico	—	—	—	—	2	2
	Netherlands	—	—	—	—	—	—
	Romania	—	655	—	—	—	655
	Soviet Union	961	53	1,076	—	6	2,096
	United Kingdom	1,610	7,234	966	83	165	10,058
	Yugoslavia	—	327	—	—	—	327
	Totals	**20,369**	**14,532**	**4,839**	**2,895**	**2,395**	**45,030**

Source: U.S. Department of Commerce, International Trade Administration, Office of Capital Goods and International Construction. *For 1989, 1990 and 1991, "Other" includes units whose horsepower is not specifically provided, tractors without power take off and garden tractors, but not rotary tillers. Totals include countries not individually listed.

Dollar Value of Farm Equipment Imports by Country of Origin, Jan., 1986-June, 1991

(In Thousands)

Country	Jan.-Dec. 1986	Jan.-Dec. 1987	Jan.-Dec. 1988	Jan.-Dec. 1989	Jan.-Dec. 1990	Jan.-June 1991
Canada	$366,074	$497,337	$575,949	$554,118	$507,598	$192,915
Mexico	6,218	11,419	37,008	32,041	25,553	7,933
Brazil	10,967	18,877	27,632	29,732	25,150	19,843
Sweden	4,538	4,731	4,805	4,554	7,069	4,297
Denmark	7,290	9,676	13,106	9,055	16,742	7,069
Netherlands	29,778	31,513	33,422	28,841	38,091	19,270
United Kingdom	234,406	256,182	366,337	378,660	425,322	188,874
Belgium	42,537	46,125	64,028	67,283	135,039	41,497
France	64,556	64,776	118,789	118,590	141,479	61,853
Germany	252,740	244,560	289,718	326,937	506,875	226,957
Austria	3,455	4,480	6,279	3,566	11,544	2,248
Yugoslavia	1,251	7,766	8,968	5,343	4,747	2,431
Hungary	1,816	5,917	5,620	13,136	13,288	6,673
Czechoslovakia	6,197	3,759	6,849	7,085	10,259	2,965
Romania	1,921	5,326	5,710	5,208	4,467	2,665
Italy	118,808	128,651	154,915	158,473	158,072	74,340
Spain	5,978	6,254	7,436	9,198	5,728	2,745
Israel	7,475	8,629	9,171	9,274	8,262	3,565
New Zealand	8,123	11,012	12,903	6,375	5,588	2,008
Australia	5,941	7,159	8,429	9,548	4,637	1,985
Japan	418,780	420,852	388,774	370,349	343,272	185,465
China (Taiwan)	6,066	7,297	8,322	9,501	7,673	3,315
China (P.R.C.)	3,002	5,408	6,345	4,302	5,249	2,799
Korea	5,667	7,456	19,842	29,136	29,741	12,403
Soviet Union	3,731	5,394	9,599	12,127	20,591	10,471
TOTAL*	**$1,630,628**	**$1,834,925**	**$2,206,957**	**$2,229,902**	**$2,501,812**	**1,102,336**

Source: U.S. Department of Commerce, International Trade Administration, Office of Capital Goods and International Construction.
*Total includes all countries, not just those listed.

Exports of Farm Equipment by Product, 1988-1991

Product	Jan.-Dec. 1988 Quantity	Jan.-Dec. 1988 Dollar Value in Thousands	Jan.-Dec. 1989 Quantity	Jan.-Dec. 1989 Dollar Value in Thousands	Jan.-Dec. 1990 Quantity	Jan.-Dec. 1990 Dollar Value in Thousands	Jan.-June 1991 Quantity	Jan.-June 1991 Dollar Value in Thousands
Combines, pull-type	644	$9,766	1,228	$17,501	998	$27,656	358	$10,024
Combines, self-propelled	2,333	96,119	5,261	160,057	3,583	181,501	1,537	81,514
Cultivators, tractor-drawn or mounted	1,748	4,332	2,585	5,109	1,095	2,100	1,597	2,118
Cultivators, NEC, and Weeders	6,031	6,902	4,728	7,416	12,196	41,666	4,081	6,228
Farm Elevators and Blowers	1,866	5,326	NA	NA	NA	NA	NA	NA
Farm Wagons and Carts	1,863	4,490	2,488	5,688	—	—	—	—
Parts for Farm Wagons and Carts	—	709	—	2,815	—	—	—	—
Fertilizing Machines	5,055	10,906	8,532	13,942	8,281	17,671	5,406	11,125
Forage Harvesters	1,878	30,355	1,677	32,209	1,598	29,860	793	19,806
Harrows, Disk	1,316	4,649	1,960	6,403	1,692	6,447	718	2,710
Harrows, NEC, & Scarifiers	8,786	8,145	5,616	5,079	4,281	4,629	2,162	3,286
Parts for Harrows, Stalk Cutters & Soil Pulverizers	—	3,293	—	5,817	—	52,000	—	35,012
Harvesting Machines, NEC	3,915	63,930	2,399	42,473	3,212	44,910	2,528	32,872
Harvesting Machine Parts	—	53,509	—	44,206	—	—	—	—
Hay Balers	9,033	54,993	9,765	60,693	8,355	72,065	3,589	35,551
Haying Machines, NEC (incl. rakes & tedders)	3,460	18,954	4,830	29,538	3,947	30,770	1,913	15,773
Parts for Haying Machine	—	23,278	—	20,510	—	18,299	—	6,509
Mowers, Cutterbar, tractor-mounted	1,659	4,930	7,102	12,649	14,722	30,784	12,229	20,657
Mowers, Rotary, tractor-drawn excl. lawn mowers)	14,057	8,504	39,172	20,075	13,938	8,963	16,133	7,930
Mowers, NEC, tractor-drawn (excl. lawn mowers)	3,335	7,773	2,231	6,930	555	1,794	76	330
Planting Machines	1,818	7,152	3,260	11,027	3,281	12,898	1,898	6,510
Plows, Disk	597	1,511	517	1,843	477	1,204	352	1,038
Plows, Moldboard	1,122	4,320	394	1,903	347	1,611	88	401
Plows & Listers, NEC	4,369	9,083	5,403	15,190	2,705	7,669	965	3,477
Parts for Plows, Listers, Cultivators & Weeders	—	9,922	—	9,328	—	3,447	—	1,309
Seeding Machines	3,984	11,469	6,340	17,193	6,974	22,975	1,820	8,219
Parts for Planting, Seeding & Fertilizing Machines	—	17,761	—	15,853	—	15,373	—	7,139
Sprayers, Agricultural, including parts	—	227,752	—	294,425**	—	387,668	—	196,120
Farm Tractors:								
Under 40 PTO HP	730	3,582	6,805*	30,165*	13,231	51,274	5,748	24,598
40-59 PTO HP	211	2,378	117	1,850	278	3,824	185	2,458
60-79 PTO HP	212	2,551	125	1,983	313	5,607	80	1,748
80-99 PTO HP	158	3,238	93	2,445	208	6,521	85	2,653
100-119 PTO HP	1,016	32,855	1,050	34,753	808	26,389	311	11,726
120-139 PTO HP	1,597	56,292	2,039	67,530	1,529	60,111	697	27,829
140-159 PTO HP	1,353	52,073	2,184	80,612	1,540	66,959	905	39,894
160-179 PTO HP	804	33,914	1,303	54,961	1,009	49,807	563	27,125
180 PTO HP & Over	1,016	56,686	2,051	107,834	2,127	127,753	946	54,264
Other Farm Tractors	2,306	31,617	2,815	25,731	2,943	52,148	1,518	19,409
Parts for Farm Tractors	—	680,695	—	621,271	—	508,331	—	226,335

SOURCE: U.S. Department of Commerce, International Trade Administration, Office of Capital Goods and International Construction. *1989, 1990 and 1991 data appear to include garden tractors.
**Includes irrigation equipment.
NEC - Not Elsewhere Counted.

INDUSTRY NEWS

Here, for your evaluation, is a wrapup of some of the hotter news items to hit the ag/industrial/power equipment business as the year neared an end.

***

Deere & Co. announced signing in early November with Fiat S.p.A. of Italy and Hitachi Construction Machinery Co., Ltd., of Japan a memorandum of understanding for a potential joint agreement in the field of construction equipment.

The memorandum sets in motion an "exploratory and evaluation process" to explore possible cooperation for the manufacture and distribution of a broad range of construction machinery, primarily in Europe, Africa and the Middle East—those geographic lines exactly duplicate the organizational line of Deere's overseas, which generates about 20 percent of the corporation's total business.

The talks were to focus on the operations of Fiat-Hitachi and the Fiat-Allis operations in Lecce, Italy, which builds a backhoe-loader using Deere designs.

Deere spokesman Robert J. Combs noted other ties among the 3 firms. Deere's Dubuque, Iowa, plant has been building, since 1987, a line of 4-wheel-drive loaders, backhoes and utility crawlers sold under the Hitachi name outside the U.S.

***

Downsizing and consolidation seems to be the rule throughout the ag and industrial machinery business, continuing the pattern that began in the early 1980s.

Some 4,700 employees worldwide were furloughed this year in the Fiat and Ford New Holland operations that are now controlled by N.H. Geotech. In the FNH heartland in Lancaster County, Pa., 432 people were cut, dropping the work force to about 2,400 people.

At Deere, there's a plan to drop about 2,100 positions from salaried and wage ranks over the next 2 to 3 years. The company said its fourth quarter results for the period that ended October 31 would include a special after-tax charge of about $120 million to cover the reduction costs. Deere, in agreeing this fall to a new contract with the United Auto Workers union, wrote in provisions to shutter its East Moline, Ill., foundry over the next 2 years, affecting 604 people there.

For the third business quarter that ended July 31, Deere & Co. reported net income of $31.3 million (41 cents a share) compared to income of $114.1 million for the same period of 1990. Worldwide sales and revenues were down 13 percent of $1.79 billion, compared to $2.053 billion a year earlier. Worldwide production was down 19 percent for the third quarter 1991.

JI Case has eliminated about 5,000 jobs worldwide since September 1990, and issued a report setting aside $413 million future restructuring that will include unspecified amounts personnel reduction, plant closings and "product rationalization."

That $413 million charge was written into the books for 1991's third quarter, when Case sustained an operating loss of $169 million compared to income of $26 million for the third quarter of 1990. Case's parent, Tenneco, showed a overall third quarter loss of $693 million on sales and revenues of $3.182 billion, but

(See NEWS, pg. 23)

INDUSTRY UPDATE

Lower Losses In Some Sales Sectors

SALES WERE less than dismal for some big-ticket farm machines, with combines and 2-wheel-drive tractors over 100 pto hp doing acceptably well in portions of the 3 months running from August through October, according to the flash reports of the Equipment Manufacturers Institute.

Combines were a relatively bright spot. This year's sales topped the results from August 1990 by 10.7 percent. September sales were dismally behind the 1990 figures, but October saw some improvement, with the result that sales for the first 10 months were only 3.9 percent behind 1990 results.

The bigger 2wd tractors were only 5 percent behind 1990 by the end of October, perhaps proving that buyers exist as long as prices are low enough to lure them out.

Canadian sales figures reported by the Canadian Farm and Industrial Equipment Institute followed about the same trend, with larger 2wd tractors actually ahead of 1990 sales by the end of September, and combines 13.9 percent ahead of last year.

The EMI inventory figures would presage no shortage of machinery for next year, with existing supplies approximating 8 months to 1 year of sales at the current pace in all categories. □

U.S. - UNIT RETAIL SALES

Equipment	August 1991	August 1990	% Change	January-August 1991	January-August 1990	% Change	July 1991 Inventory N.A. Factory & U.S. Field
Farm Wheel Tractors:							
2-Wheel Drive							
Under 40 HP	2,547	3,101	(17.9)	27,062	31,747	(14.8)	33,725
40 & Under 100 HP	2,336	2,729	(14.4)	24,344	27,281	(10.8)	23,712
100 HP & Over	757	841	(10.0)	13,534	13,558	(22.3)	12,198
Total 2-Wheel Drive	5,640	6,671	(15.5)	64,940	72,586	(10.5)	69,635
Total 4-Wheel Drive	238	282	(15.6)	2,616	3,334	(21.5)	2,535
Total Farm Wheel Tractors	5,878	6,953	(15.5)	67,556	75,920	(11.0)	72,170
Combines:							
(Self-Propelled)	561	507	10.7	5,868	5,600	4.8	5,288

U.S. - UNIT RETAIL SALES

Equipment	September 1991	September 1990	% Change	January-September 1991	January-September 1990	% Change	August 1991 Inventory N.A. Factory & U.S. Field
Farm Wheel Tractors:							
2-Wheel Drive							
Under 40 HP	2,625	3,010	(12.8)	29,565	34,757	(14.9)	29,358
40 & Under 100 HP	2,484	2,534	(2.0)	26,910	29,815	(9.7)	22,761
100 HP & Over	983	1,167	(15.8)	14,520	14,725	(1.4)	11,961
Total 2-Wheel Drive	6,092	6,711	(9.2)	70,995	79,297	(10.5)	64,080
Total 4-Wheel Drive	244	195	25.1	2,867	3,529	(18.8)	2,244
Total Farm Wheel Tractors	6,336	6,906	(8.3)	73,862	82,826	(10.8)	66,324
Combines:							
(Self-Propelled)	679	1,161	(41.5)	6,554	6,761	(3.1)	4,535

U.S. - UNIT RETAIL SALES

Equipment	October 1991	October 1990	% Change	January-October 1991	January-October 1990	% Change	September 1991 Inventory N.A. Factory & U.S. Field
Farm Wheel Tractors:							
2-Wheel Drive							
Under 40 HP	2,573	2,858	(10.0)	32,258	37,615	(14.2)	33,225
40 & Under 100 HP	2,964	3,302	(10.2)	29,760	33,117	(10.1)	22,625
100 HP & Over	1,893	2,549	(25.7)	16,411	17,274	(5.0)	14,468
Total 2-Wheel Drive	7,430	8,709	(14.7)	78,429	88,006	(10.9)	70,318
Total 4-Wheel Drive	617	618	(.2)	3,483	4,147	(16.0)	2,307
Total Farm Wheel Tractors	8,047	9,327	(13.7)	81,912	92,153	(11.1)	72,625
Combines:							
(Self-Propelled)	1,269	1,380	(8.0)	7,823	8,141	(3.9)	5,436

These data are, in part, estimates which are subject to revisions when final detail data become available. Because of the seasonal nature of the industry comparisons of monthly data from one period to another should be done with extreme caution. These data represent most, but not all, of the manufacturers in each product category being sold at retail in the fifty states and the District of Columbia.

Canada Report
Retail Sales In Units

EQUIPMENT	August 1991	August 1990	% Chg.	August/Ytd 1991	August/Ytd 1990	% Chg.
FARM WHEEL TRACTORS						
2WD under 40 H.P.	188	281	-33.1%	1,905	2,650	-29.1%
2WD 40-99 H.P.	370	515	-28.2%	3,817	4,626	-17.5%
2WD 100 H.P. & Over	114	97	17.5%	1,677	1,684	-4.0%
Total 2WD	672	893	-24.7%	7,399	8,960	-17.4%
Total 4WD	83	89	-6.7%	1,015	1,158	-12.3%
TOTAL FARM WHEEL TRACTORS:	755	982	-23.1%	8,414	10,118	-16.8%
COMBINES						
Self Propelled	244	267	-8.6%	867	718	20.8%
Pull Type	44	32	37.5%	83	90	-7.8%
BALERS						
Rectangular Balers	84	167	-49.7%	576	933	-38.2%
Round Balers	398	582	-31.6%	341	388	-12.1%
SWATHERS						
Self Propelled	231	191	20.9%	514	500	2.8%
Pull Type	324	404	-19.8%	542	819	-33.8%
FORAGE HARVESTERS						
Shear Bar Type	54	79	-31.6%	341	388	-12.1%
MOWER CONDITIONERS	336	489	-31.3%	2,431	2,715	-10.5%

Canada Report
Retail Sales In Units

EQUIPMENT	September 1991	September 1990	% Chg.	September/Ytd 1991	September/Ytd 1990	% Chg.
FARM WHEEL TRACTORS						
2WD under 40 H.P.	202	183	10.4%	2,109	2,833	-25.6%
2WD 40-99 H.P.	409	418	-2.2%	4,224	5,044	-16.3%
2WD 100 H.P. & Over	153	102	50.0%	1,830	1,786	2.5%
Total 2WD	764	703	8.7%	8,163	9,663	-15.5%
Total 4WD	53	74	-28.4%	1,068	1,232	-13.3%
TOTAL FARM WHEEL TRACTORS:	817	777	5.1%	9,231	10,895	-15.3%
COMBINES						
Self Propelled	236	250	-5.6%	1,103	968	13.9%
Pull Type	23	51	-54.9%	91	141	-35.5%
BALERS						
Rectangular Balers	65	84	-22.6%	643	1,017	-36.8%
Round Balers	291	301	-3.3%	2,822	3,240	-12.9%
SWATHERS						
Self Propelled	102	138	-26.1%	592	633	-6.5%
Pull Type	123	247	-50.2%	628	1,066	-41.1%
FORAGE HARVESTERS						
Shear Bar Type	40	56	-28.6%	381	444	-14.2%
MOWER CONDITIONERS	164	271	-39.5%	2,595	2,986	-13.1%

BALERS

(From pg. 19)

the highest density available, with the easiest system for controlling density, and that we make the nicest-looking bales in the business. Farmers want their work to look good, and that was a big consideration in this new design."

The company said the current model 853 and 855 balers will be replaced for the 1992 season by the 650 and 660 models, which produce bale widths of 46.5 and 61.5 inches respectively, with diameters of 45 to 70 inches. Also offered for 1992 will be an economy model 630 roll-belt baler with bale width of 46.5 inches and diameters of 30 to 48 inches.

Payton said the current model 848 chain baler will remain in production for the 1992 season, but will be replaced in 1993 with a roll-belt baler.

He said the new design works well in sandy and rocky conditions, which was hard on the metal parts of the chain bale-forming systems. He said the new machines offer improvements in operator visibility, visual indicators for bale size, twine movement and the tailgate latch indicator.

As is typical of all belt balers, he said, the new machines take somewhat more operating horsepower than chain balers of the same size. □

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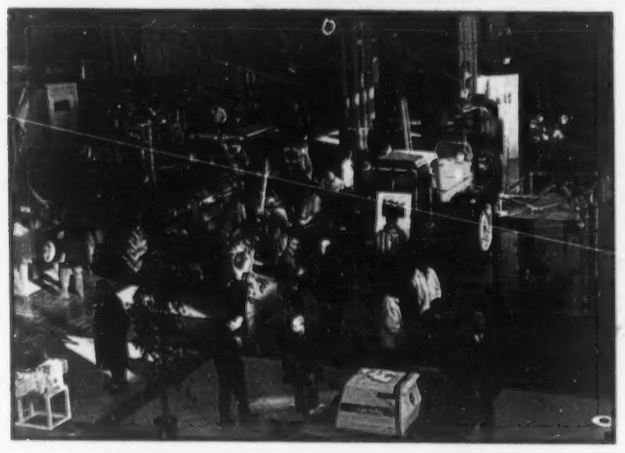

VOLUME 107, NO. 1 JANUARY/FEBRUARY 1992

WALTER F. HANSSEN intends to follow the example his father set in building a John Deere dealership to establish a base for Belarus tractors, whose basic ruggedness he considers a virtue.

Selling Belarus To The West

By DAN BRYANT

THE COLLAPSE of the Soviet Union may spur the start of something big for Walter Hanssen.

Hanssen, president of California Farm Equipment, Inc., opened the first Belarus tractor dealership in California last August, and is banking on farmers taking to the Russian-made tractor the same way East-West politics entwined after the collapse of the Soviet Union.

The austere, low-tech, and bright red Belarus is essentially on a par with 1960s-vintage International or John Deere tractors. Hanssen sees the manual, non-electronic simplicity as a plus, since it translates to a purchase price that is generally half that of

(See BELARUS, pg. 14)

Editor's Notebook:

News Is Shaping Industry

By SCOTT NESBITT

A collection of news and some notes on what it might all mean:

Case Cuts 4,000 From Work Force

"The market has become a replacement market," explained Bob Carlson, the recently appointed president and CEO of the JI Case Co., division of Tenneco, Inc.

Because the market has changed, Case announced in December it was planning to cut costs and simplify corporate structure by removing 4,000 employees from payrolls during 1992. That would drop the worldwide work force from 25,000 to 21,000. The 4,000 came on top of 5,000 positions eliminated by Case since late 1990.

About half the cuts are slated for North America, the other half in Europe. Layoffs, early retirement and normal attrition will be used to trim all levels of the organization: hourly, salaried, managerial and executive.

In a memo circulated at Case, Carlson said, "Today's products incorporate higher levels of reliability and greater performance capability, yielding many more hours of useful life. . . the bulk of the fleet in customers' hands are equipped with operator comforts, modern transmissions and state-of-the-art hydraulics.

(See NOTEBOOK, pg. 3)

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NOTEBOOK

(From pg. 1)

"In a word, the agricultural customers in Western Europe and North America have modernized their fleets of tractors and combines, and there is no meaningful technology on the horizon that promises more comfort, more reliability, or more productivity at lower cost that will cause the farmer to trade prior to the end of a machine's useful life as defined by its first owner."

With the emphasis on replacing existing machines, rather than supplying new customers, the future holds lower annual unit sales of tractors and combines, and lower production schedules throughout the industry.

"We begin these work force reductions," Carlson said, "because there is no choice—we must size our company realistically to the new marketplace, and we must be profitable in order for our dealers and our customers to, in turn, be profitable."

Comment: The designers, engineers, production-line workers and other employees apparently did their job too well, and worked themselves out of their jobs at Case.

Can someone in private enterprise (government would mess it up) tap the talents of the state-of-the-art people who created machines so good they don't have to be replaced very often.

There's a world full of people craving the material things we North Americans take for granted, like comfortable, reliable tractors and durable field equipment. The former "evil empire" is ripe for modernization.

The Japanese have proved you can make money serving markets others abandon or ignore, like the market for small tractors and cars on this continent.

Case has been shrinking for years. The firm's 1989 annual claimed "more than 28,000 employees," while the 1990 report showed 27,800. Carlson's statement put the work force at 25,000, headed down to 21,000. That's about 25 percent since 1989. Decline has hit other "big name" farm and industrial machinery companies. Some declined so much they disappeared.

This current century witnessed, for the most part, the steady growth of machinery makers from small shops into world-spanning empires. Might the next 100 years be the century of the shortliner?

* * * * *

Case Picks Campbell As New President

JI Case Co. has announced that effective Jan. 1, 1992, the company's new president is Edward J. Campbell, a veteran of Tenneco operations.

Campbell takes over part of the job held by Bob Carlson, who had been serving as both president and chief executive officer.

Campbell had been president since 1979 of another Tenneco subsidiary, Newport News Shipbuilding, the largest privately-owned shipyard in the world, where revenues grew from $700 million in 1979 to $2 billion in 1990. He had also served as Case executive vice president for 11 years.

Carlson said Campbell is "going to play a major role in our restructuring and in our return to financial viability."

Comment: Carlson came from archrival Deere & Co. and knows how to make a profit their way. Campbell knows how to run things to make some money for Tenneco. The 1990 Tenneco annual report shows Newport News contributed 16 percent of Tenneco's operating income, and 15 percent of consolidated revenues. Case, in the same period, contributed less profit, 14 percent of income, while generating 37 percent of consolidated revenues.

With a new leader at Tenneco, Michael J. Walsh, expect a systematic shakeup through the Case organization.

There's been no indication in the Case corporate news that the company will want to trim the North American dealer network, which stands at about 450 in construction and 1,500 in ag machinery—but anything could happen.

* * * * *

Despite Deere's Downturn Regular Dividend Paid

The Deere & Co. board of directors announced on Dec. 11 that they would pay the regular quarterly dividend of 50 cents per share, payable Feb. 3, to shareholders of record on Dec. 31, 1991.

The day before the declaration, the company noted it was taking a one-time charge of $120 million to cover costs of cutting 2,100 jobs over the next two to three years, and closing a foundry. Because of that one-time charge, what would have been a profit of $99.8 million for the 1991 fiscal year became a loss of $20.2 million—which equates to a loss of 27 cents per share for the fiscal year that ended October 31.

Hans W. Becherer, Deere's chairman and CEO, forecast a flat market for the near future, saying "initial 1992 worldwide production, in tons, is scheduled to be about the same as the company's actual 1991 output...agricultural production is scheduled to be down modestly from last year, but offset by increases in lawn and grounds care equipment and industrial equipment schedules."

Becherer declared that "although the economic fundamentals of North American agriculture remain relatively strong, we expect farms to remain cautious in making new product purchase decisions in 1992. Consequently, domestic agricultural machinery retail sales are expected to remain near 1991 levels."

Comment: Is it meaningful that the

(See NOTEBOOK, pg. 13)

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INDUSTRY NEWS

Season Ends With Sales Low, Inventories High

FARM machinery sales reports from the United States and Canada continued painting a gloomy picture through November, with the only upturn category coming from improved sales (nearly 7 percent) self-propelled combines north of the border, according to the Canadian Farm & Industrial Equipment Institute.

Reports from the Equipment Manufacturers Institute show U.S. inventories remaining high as winter approached, a situation reflected in factory cutbacks announced by major producers. □

U.S. - UNIT RETAIL SALES

Equipment	November 1991	November 1990	% Change	January-November 1991	January-November 1990	% Change	October 1991 Inventory N.A. Factory & U.S. Field
Farm Wheel Tractors:							
2-Wheel Drive							
Under 40 HP	1,663	2,231	(25.5)	34,004	39,846	(14.7)	31,659
40 & Under 100 HP	1,991	2,441	(18.4)	31,698	35,558	(10.9)	21,874
100 HP & Over	1,550	1,948	(20.4)	17,996	19,222	(6.4)	14,294
Total 2-Wheel Drive	5,204	6,620	(21.4)	83,698	94,626	(11.5)	67,827
Total 4-Wheel Drive	242	522	(53.6)	3,723	4,669	(20.3)	2,238
Total Farm Wheel Tractors	5,446	7,142	(23.7)	87,421	99,295	(12.0)	70,065
Combines:							
(Self-Propelled)	1,010	1,211	(16.6)	8,833	9,352	(5.5)	5,331

These data are, in part, estimates which are subject to revisions when final detail data become available. Because of the seasonal nature of the industry comparisons of monthly data from one period to another should be done with extreme caution. These data represent most, but not all, of the manufacturers in each product category being sold at retail in the fifty states and the District of Columbia.

U.S. - UNIT RETAIL SALES

Equipment	December 1991	December 1990	% Change	January-December 1991	January-December 1990	% Change	November 1991 Inventory N.A. Factory & U.S. Field
Farm Wheel Tractors:							
2-Wheel Drive							
Under 40 HP	1,874	2,215	(15.4)	35,895	42,061	(14.7)	32,078
40 & Under 100 HP	2,225	2,863	(22.3)	33,891	38,421	(11.8)	21,777
100 HP & Over	2,128	3,569	(40.4)	20,119	22,791	(11.7)	14,089
Total 2-Wheel Drive	6,227	8,647	(28.0)	89,905	103,273	(12.9)	67,944
Total 4-Wheel Drive	386	433	(10.9)	4,069	5,102	(20.2)	2,482
Total Farm Wheel Tractors	6,613	9,080	(27.2)	93,974	108,375	(13.3)	70,426
Combines:							
(Self-Propelled)	880	1,081	(18.6)	9,715	10,433	(6.9)	5,253

Canada Report
Retail Sales In Units

EQUIPMENT	October 1991	October 1990	% Chg.	October/Ytd 1991	October/Ytd 1990	% Chg.
FARM WHEEL TRACTORS						
2WD under 40 H.P.	237	295	-19.7%	2,351	3,128	-24.8%
2WD 40-99 H.P.	659	832	-20.8%	4,874	5,876	-17.1%
2WD 100 H.P. & Over	291	341	-14.7%	2,121	2,127	-0.3%
Total 2WD	1,187	1,468	-19.1%	9,346	11,131	-16.0%
Total 4WD	165	160	3.1%	1,233	1,392	-11.4%
TOTAL FARM WHEEL TRACTORS:	1,352	1,628	-17.0%	10,579	12,523	-15.5%
COMBINES						
Self Propelled	244	295	-17.3%	1,350	1,263	6.9%
Pull Type	17	23	-26.1%	108	164	-34.1%
BALERS						
Rectangular Balers	57	70	-18.6%	700	1,087	-35.6%
Round Balers	258	299	-13.7%	3,080	3,539	-13.0%
SWATHERS						
Self Propelled	62	60	3.3%	654	693	-5.6%
Pull Type	42	72	-41.7%	670	1,138	-41.1%
FORAGE HARVESTERS						
Shear Bar Type	38	53	-28.3%	419	497	-15.7%
MOWER CONDITIONERS	174	174	0.0%	2,778	3,160	-12.1%

Canada Report
Retail Sales In Units

EQUIPMENT	November 1991	November 1990	% Chg.	November/Ytd 1991	November/Ytd 1990	% Chg.
FARM WHEEL TRACTORS						
2WD under 40 H.P.	210	231	-9.1%	2,562	3,359	-23.7%
2WD 40-99 H.P.	390	500	-22.0%	5,253	6,376	-17.6%
2WD 100 H.P. & Over	129	149	-13.4%	2,257	2,276	-0.8%
Total 2WD	729	880	-17.2%	10,072	12,011	-16.1%
Total 4WD	70	96	-27.1%	1,303	1,488	-12.4%
TOTAL FARM WHEEL TRACTORS:	799	976	-18.1%	11,375	13,499	-15.7%
COMBINES						
Self Propelled	65	64	-1.6%	1,417	1,327	6.8%
Pull Type	4	10	-60.0%	112	174	-35.6%
BALERS						
Rectangular Balers	32	57	-43.9%	733	1,144	-35.9%
Round Balers	79	89	-11.2%	3,159	3,628	-12.9%
SWATHERS						
Self Propelled	39	31	25.8%	693	724	-4.3%
Pull Type	21	19	-10.5%	691	1,157	-40.3%
FORAGE HARVESTERS						
Shear Bar Type	28	16	-75.0%	447	513	-12.9%
MOWER CONDITIONERS	110	118	-6.8%	2,888	3,278	-11.9%

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